

Appl. No. 10/734,536  
Atty. Docket No. 7858MD  
Amdt. Dated May 1, 2006  
Reply to Non-Final Office Action Dated January 23, 2006  
Customer Number 27752

## **REMARKS**

### **Restriction Requirement**

Applicants confirm the provisional election with traverse of Group I Claims 1 to 6, drawn to compositions as discussed with the Examiner by telephone on January 11, 2006. Method Claims 7 to 9 are thus withdrawn as non-elected claims. As indicated by the Examiner, should the compositions of Claims 1 to 6 be found allowable, Claims 7 to 9 would be rejoined in accordance with the provisions of MPEP § 821.04, if the claims depend from or include all the limitations of the patentable compositions.

### **Claim Status**

Claim 1 is amended to incorporate the matter of Claim 3, thus now reciting the species of polymeric mineral surface active agents that provide the surface conditioning benefits. The "polymeric mineral surface active agent" is defined as a polyelectrolyte selected from the recited species. More specifically, the polymeric agents contain anionic groups, e.g., phosphate, phosphonate, carboxy, or mixtures thereof. It should be noted that linear condensed polyphosphates are not among the claimed polymeric mineral surface active agents. Claim 1 is further amended to recite that the polymeric mineral surface active agent is present in an amount sufficient to deposit a conditioning film onto oral surfaces.

Claim 3 is cancelled, the matter having been incorporated into Claim 1.

Claim 4 is amended to now depend from Claim 1, following cancellation of Claim 3.

Although withdrawn at this time, Claim 7 is amended to recite the species and amount of polymeric mineral surface active agent as in Claim 1.

By these amendments Claims 1, 2, and 4 to 6 are under consideration. Claims 7 to 9 are withdrawn from consideration. No new matter is involved with the amendments to the claims. Consequently entry of these changes is believed to be in order and is respectfully requested.

### **Claims Rejection Under 35 U.S.C. §102(e) and §102(b)**

It is stated in the Office Action that Claims 1, 2, 3, 5 and 6 are rejected under 35 USC §102(e) as being anticipated by Glandorf (U.S. 6,187,295). It is contended that Glandorf teaches compositions incorporating polyphosphates to reduce the astringency as well as

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staining caused by stannous compounds present in the composition. Glandorf's compositions further include surfactants such as polyoxyethylene.

Claims 1-6 are rejected under 35 USC §102(b) as being anticipated by Zerby (U.S. 5,451,401). It is contended that Zerby discloses oral care compositions comprising polyphosphonic acid esters as tartar control agents, and these polyphosphonates encompass the present claimed polyphosphonates.

Applicants respectfully traverse the Examiner's rejection of the claims under 35 USC §102(e) and §102(b) and submit that Claims 1-6 as now presented are distinct and unobvious from the cited references.

Firstly, Applicants believe it would be useful to present a brief synopsis of the present claimed invention.

The present claims define oral care compositions containing specified polymeric surface active agents, which deposit on oral surfaces a conditioning film providing (a) increased hydrophilic character as measured by a decrease in water contact angles or an increase in anionic surface charge and surface charge density and (b) decreased pellicle film thickness. Such modification of the oral surfaces leads to improved cleaning of oral surfaces and importantly, an improved cleaning impression recognized by the user as smooth teeth, clean-feeling teeth, clean mouth feeling and longer lasting clean feeling. These mouth feel aesthetic benefits are significant in reinforcing to the user that the product is working not only during use but importantly after use (such as by toothbrushing) for extended periods of time. The present compositions provide the benefit of post brushing maintenance of smooth teeth/clean mouth condition, which is not adequately provided by conventional dentifrice compositions. As demonstrated in consumer testing, prior art dentifrice compositions provide relatively poor post brushing maintenance of smooth teeth/clean mouth condition, with perception below neutral by early afternoon following brushing in the morning. This is disappointing to consumers who expect cleaning effects to last longer following use. The long lasting clean mouth impression results from the deposition onto teeth and other oral surfaces of a polymeric film, which creates a hydrophilic tooth surface immediately after treatment. The effect of creating an increased hydrophilic surface can be measured in terms

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of a relative decrease in water contact angles. The hydrophilic surface, importantly, is maintained on the tooth surface for an extended period after using the product, e.g., tooth brushing. *In vivo* studies show a direct correlation between consumer desirable clean teeth and smooth teeth perception and lower water contact angle surfaces or more hydrophilic surfaces.

The present polymeric surface active agents are polyelectrolytes, more specifically anionic polymers that have surface activity or substantivity toward mineral surfaces such as calcium phosphate minerals or teeth. The present polymers contain anionic groups, e.g., phosphate, phosphonate, carboxy, or mixtures thereof, and thus, have the capability to interact with cationic or positively charged entities. In particular, these polymeric surface active agents having anionic groups bind to teeth which contain positive binding sites such as calcium ions ( $\text{Ca}^{+2}$ ), thereby forming a polymeric film on the tooth surface giving it increased hydrophilic character.

Applicants respectfully submits that there is no disclosure or any suggestion whatsoever in any of the cited commonly assigned references of the claimed polymeric agents.

Zerby discloses phosphonic acid esters, containing multiple phosphonic groups, preferably two phosphonic groups. Zerby does not disclose the present polymeric materials, i.e., containing repeating monomeric units with anionic functionality. Instead Zerby's disclosure is focused on compounds having two or more phosphonic groups, preferably ethane-1-hydroxy-1,1-diphosphonic acid. Zerby's compounds are not polymeric.

Glandorf indeed discloses a polymer, i.e., linear condensed polyphosphates as an agent to reduce astringency of stannous in oral compositions. However, the present claimed polymers do not include Glandorf's linear condensed polyphosphates.

Glandorf's compositions may contain nonionic surfactants, including polymers such as polyoxyethylene. Zerby discloses that polymers such as polycarboxylates may be incorporated in their compositions. However, neither Glandorf nor Zerby disclose the present claimed anionic polymers that deposit a polymeric film onto oral surfaces, much less that such deposited polymeric film would result in a surface with increased hydrophilic

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character and even less that such hydrophilic surface would provide consumer desirable clean teeth and smooth teeth perception that would last for extended periods of time. Indeed there is no recognition in Glandorf or in Zerby of the desirability of providing increased hydrophilic character to oral surfaces in order to provide consumer preferred mouth feel characteristics. Absent recognition of such desirable benefit, the solution to providing such benefit could not have been disclosed by Glandorf or Zerby. Instead, the cited disclosures claim compositions with additional required components in order to provide other benefits.

Applicants respectfully request withdrawal of the rejection under under 35 USC §102(b) and under §102(e), in view of Zerby and Glandorf, respectively.

**Obviousness-Type Double Patenting Rejection**

Claims 1-6 have been rejected under the judicially created doctrine of obviousness-type double patenting over Claims 1, 3 and 4 of U.S. Patent No. 6,821,507 and provisionally over Claims 1, 3 and 5 of copending Application No. 10/975,963.

With respect to copending Application No. 10/975,963, it is respectfully submitted that there is no overlap between the present claims and claims 1, 3 and 5 of the application. The claims of 10/975,963 are directed to compositions comprising a linear condensed polyphosphate, which are not among the presently claimed polymers. Neither is there any overlap between the present claims and Claims 1, 3 and 4 of U.S. Patent No. 6,821,507, which are directed to compositions comprising the combination of a stannous source, a fluoride source and a polymeric surface active agent, wherein the stannous provides antimicrobial activity effective for reducing plaque and gingivitis. The present claims are directed to compositions, wherein the polymeric surface active agent provides surface conditioning effects to a subject's teeth and mucosal surfaces and does not require either stannous or fluoride.

Furthermore, the present application and the cited references have the same priority date and thus would have the same term.

Applicants respectfully request withdrawal of the obviousness-type double patenting rejection of the claims.

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### CONCLUSION

Applicants have made an earnest effort to place their application in proper form and to distinguish the invention as now claimed from the applied references. In view of the foregoing, reconsideration of this application, entry of the amendments presented, withdrawal of the claims rejection under 35 USC §102(b) and §102(e), withdrawal of the nonstatutory double-patenting rejection, withdrawal of the restriction requirement and rejoining of method Claims 7 to 9 and allowance of all claims are respectfully requested.

The Examiner is respectfully invited to telephone the undersigned representative if she believes an interview might be useful to advance prosecution of this case.

Respectfully submitted,

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